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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/806,313	03/29/2001	Hiroaki Sudo	L9289.01126	6690

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Washington, DC 20036

EXAMINER	
BAYARD, EMMANUEL	
ART UNIT	PAPER NUMBER
2631	

DATE MAILED: 09/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/806,313	SUDO, HIROAKI	
	Examiner	Art Unit	
	Emmanuel Bayard	2631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 March 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>3/29/01</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hatakeyama U.S. patent No 6,507,629 B1 in view of Sarraf et al U.S. Patent No 6,747,948 B1.

As per claim 1, Hatakeyama et al teaches an OFDM transmission apparatus comprising: a plurality of interleave means capable of executing mutually different interleave processing on a transmission signal (see figs.8 and 17 elements 2-3 and col.11, lines 15-16 and col.12, lines 1-40); selecting means for selecting (see figs.8 and 17 element 11 and col.11, lines 51-52 and col.12, lines 8-10) an interleave means to execute interleave processing on said transmission signal from among said plurality of interleave means according the number retransmissions said transmission signal; Walsh code means for performing orthogonal code processing on the transmission signal interleaved by the selected interleave means (see col.21, lines 35-38).

However Hatakeyama does not teach an OFDM means for performing OFDM processing.

Sarraf teaches an OFDM means for performing OFDM processing an interleaving means (see figs.1b and 2 element 20).

It would have obvious to one of ordinary skill in the art to implement the teaching of Sarraf into Hatakeyama as to convert the interleaving data into orthogonal Walsh code consisting of 64-bit corresponding to the symbol index SI as taught by Sarraf (see col.21, lines 35-38).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sarraf et al U.S. Patent No 6,747,948 B1 in view of Kim et al U.S. patent No 6,563,807 B1.

As per claim 2, Sarraf et al teaches an OFDM reception apparatus comprising: receiving means for receiving (see fig.2 element 22) a transmission signal performed interleave processing according to the number of retransmissions of the transmission signal by a communication apparatus and performing OFDM processing (see fig.2 element 54) on the received transmission signal; a plurality of de-interleave means (see fig.2 element 56) capable executing mutually different de-interleave processing on the received transmission signal subjected to the OFDM processing.

However Sarraf et al does not teach selecting means for selecting the de-interleave means to execute de-interleave processing corresponding to said interleave processing from among said plurality of de-interleave processing means and allowing the selected interleave means execute de-interleave processing on the received transmission signal subjected to the OFDM processing.

Kim et al teaches a Multiplexer is the know in the art as to perform the claimed (selecting means) (see fig. 4 element 312) the de-interleave means (see fig.4 elements 310a-310n) to execute de-interleave processing corresponding to said interleave processing from among said plurality of de-interleave processing means and allowing the selected interleave means execute de-interleave processing on the received transmission signal subjected.

It would have been obvious to one of ordinary skill in the art to implement the teaching of Kim into Sarraf as to restore the transmitted frame to an original frame or construct the received frame as one frame as taught by Kim (see col.4, lines 64-65 and col.7, lines 8-10).

5. Claims 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over in Hatakeyama U.S. patent No 6,507,629 B1 in view of Sarraf et al U.S Patent No 6,747,629 B1 and in further view of Kim et al U.S. patent No 6,563,807 B1.

As per claims 3-5, Hatakeyama teaches an OFDM communication apparatus with an OFDM and an OFDM reception apparatus As per claim 1, Hatakeyama et al teaches an OFDM transmission apparatus comprising: a plurality of interleave means capable of executing mutually different interleave processing on a transmission signal (see figs.8 and 17 elements 2-3 and col.11, lines 15-16 and col.12, lines 1-40); selecting means for selecting (see figs.8 and 17 element 11 and col.11, lines 51-52 and col.12, lines 8-10) an interleave means to execute interleave processing on said transmission signal from among said plurality of interleave means according the number retransmissions said transmission signal; Walsh code means for performing orthogonal code processing on the transmission signal interleaved by the selected interleave means (see col.21, lines 35-38).

However Hatakeyama does not teach an OFDM means for performing OFDM processing said OFDM reception apparatus comprising receiving means for receiving a transmission signal performed interleave processing according to the number of retransmissions of the transmission signal by the OFDM transmission apparatus and performing OFDM processing on the received transmission signal and a plurality of de-interleave means capable of executing mutually different de-interleave processing on the received transmission signal subjected to the OFDM processing.

Sarraf teaches an OFDM means for performing OFDM processing an interleaving means (see figs.1b and 2 element 20) said OFDM reception (see fig.2 element 22) apparatus comprising receiving means for receiving a transmission signal performed interleave processing according to the number of retransmissions of the transmission signal by the OFDM transmission apparatus and performing OFDM processing on the received transmission signal; a plurality of de-interleave means (see fig.2 element 58) capable of executing mutually different de-interleave processing on the received transmission signal subjected to the OFDM processing

It would have obvious to one of ordinary skill in the art to implement the teaching of Sarraf into Hatakeyama as to convert the interleaving data into orthogonal Walsh code consisting of 64-bit corresponding to the symbol index SI as taught by Sarraf (see col.21, lines 35-38).

In addition Hatakeyama and Sarraf in combination do not teach selecting means for selecting the de-interleave means to execute de-interleave processing corresponding to said interleave processing from among said plurality de-interleave processing means and allowing the selected interleave means to execute de-interleave processing on the received transmission signal subjected to the OFDM processing.

Kim et al teaches a Multiplexer is the know in the art as to perform the claimed (selecting means) (see fig. 4 element 312) the de-interleave means (see fig.4 elements 310a-310n) for selecting the de-interleave means to execute de-interleave processing corresponding to said interleave processing from among said plurality de-interleave processing means and allowing the selected interleave means to execute de-interleave processing on the received transmission signal subjected to the OFDM processing.

It would have been obvious to one of ordinary skill in the art to implement the teaching of Kim into Hatakeyama and Sarraf as to restore the transmitted frame to an original frame or construct the received frame as one frame as taught by Kim (see col.4, lines 64-65 and col.7, lines 8-10).

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claim 6 is rejected under 35 U.S.C. 102(e) as being anticipate by Sarraf et al U.S. patent No 6,747,948 B1.

As per claim 6, Sarraf et al teaches an OFDM communication method comprising: an interleave processing (see fig.2 element 18) step of executing interleave processing corresponding to the number of retransmissions of a transmission signal from among a plurality

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of interleave processing on said transmission signal; a transmitting step of performing OFDM processing on the transmission signal subjected to the interleave processing and transmitting the transmission signal subjected to the OFDM processing through a transmission path (see fig.2 element 20 and 22 and col.4, lines 18-23); a receiving step of receiving (see fig.2 element 22) said transmission signal transmitted through said transmission path and performing OFDM processing on the received signal (see fig.2 element 54 and col.6, lines 31-56); and a de-interleave (see fig.2 element 58) processing step of executing de-interleave processing corresponding to said executed interleave processing from among a plurality of de-interleave processing on the received signal subjected to the OFDM processing.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Schilling U.S. patent no 6,757,322 B1 teaches a space diversity.

Schramm U.S. patent No 5,812,601 teaches a coding for higher-level modulation.

Kato U.S. patent no 6,707,806 B1 teaches a wireless transmitter.

Stephens et al U.S. patent No 6,304,609 B1 teaches a communication system.

Yahagi U.S. patent No 6,442,176 B1 teaches a signal transmission system.

Tsujimoto U.S. patent No 5,636,242 teaches a diversity transmitter/receiver.

Lou et al U.S. patent No 6,370,666 B1 teaches a tuning scheme for error corrected broadcast.

Jordan et al U.S. patent No 6,678,856 B1 teaches a method and configuration for encoding symbols.

Kroeger et al U.S. patent No 6,345,37 B1 teaches a digital audio broadcasting method.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel Bayard whose telephone number is 571 272 3016. The examiner can normally be reached on Monday-Friday (7:Am-4:30PM) Alternate Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 571 272 3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Emmanuel Bayard
Primary Examiner
Art Unit 2631

9/24/04


EMMANUEL BAYARD
PRIMARY EXAMINER